

**BROADSCALE MONITORING FISHERIES ASSESSMENT
NORWAY LAKE - 2010
PRELIMINARY RESULTS**

Introduction

Recreational fishing is enjoyed by more than 1.3 million anglers and contributes nearly \$2.5 billion to the Ontario economy. The Ministry of Natural Resources works to maintain healthy fish stocks as they are an important environmental indicator. Healthy fish stocks ensure that present and future generations continue to enjoy high quality fishing and the associated social and economic benefits.

In 2004, the ministry introduced the Ecological Framework for Fisheries Management to enhance fisheries management in Ontario. This new framework has more public involvement, simplifies regulations, and helps the ministry better manage fisheries for the future. Increasing our understanding of inland lakes and their fisheries is an important part of this approach.

In 2008, the ministry began a long-term program to monitor the health of Ontario's lakes. The program will allow the ministry to better understand the current state of fish and other aquatic resources, identify stresses on these resources, and report on changes over time. The program is already providing information critical for managing our fisheries more effectively.

The program is called broad-scale fisheries monitoring and is occurring across Ontario each year beginning mid-May to September. Teams of biologists and technicians from Science and Information Branch and district offices in northwest, northeast, and southern Ontario will take part in these lake surveys. The surveys are intended to verify the abundance and health of fish in lakes larger than 20 hectares across a zone. The surveys are designed to monitor all species in the lake and are not intended to target individual sport fish species. Surveyed lakes will be randomly chosen. Half the lakes selected will be monitored once every five years (referred to as fixed sites) and the rest will be reselected every monitoring cycle (variable sites). The plan is to survey all of Ontario in five years. 2010 was the third year of a five-year cycle to collect information under this program.

On some sample lakes, gill nets will be set overnight and lifted in the morning. The fisheries assessment includes two different forms of netting: one uses small mesh gill nets while the other is large mesh gill nets. The reason for two different gear types is that small mesh results are used as measures of biodiversity (how many species exist) while the large mesh results are used to measure certain indices of sport fish (ie average sizes, relative abundance, etc). A variety of information will be recorded from the fish caught: sex, age, length, weight, and general health. Nets will be marked with floats with a label affixed with contact information for the local MNR office. Please do not lift or otherwise interfere with floats if they are observed on one of the lakes being sampled.

Technicians will take samples of the water, lake temperatures, check for invasive species, and collect samples of fish for contaminant analyses. In addition, there will be aerial surveys throughout the summer and into the winter to estimate the number of anglers using these lakes.

The broad-scale monitoring program is necessary to guide fisheries management in the future. It will provide MNR biologists with better information on a larger scale than has been used in the past. Regular reports will be available to the public on the status of the fisheries once the data has been analyzed. For more information, visit ontario.ca/fishing.

2008 Monitoring Highlights

Across Ontario 189 lakes were monitored – 55 in the south, 54 in the northeast and 80 in the northwest. Fish were sampled to estimate abundance and describe such characteristics as length and weight. Fish were also tested for contaminants. The

results of the testing provided information for 65 new lakes for the 2009/10 *Guide to Eating Ontario Sport Fish*.

Water temperatures, oxygen levels, and clarity were recorded, and samples from about 225 lakes were sent to the Ministry of the Environment for water quality analysis. 178 lakes were examined for invasive species such as spiny water flea and rock bass. Invasive species were found in a number of new lakes.

Aerial surveys were used to estimate summer fishing pressure by counting boats on 80 lakes in the northwest and 26 lakes in the south.

2009 Monitoring Highlights

Across Ontario, ministry staff monitored 179 lakes —32 in the south, 52 in the northeast and 95 in the northwest. Staff sampled fish to estimate abundance and describe such characteristics as length and weight. Fish were also tested for contaminants.

Water temperatures, oxygen levels, and clarity were recorded, and samples from about 198 lakes were sent to the Ministry of the Environment for water-quality analysis. Staff examined 166 lakes for invasive species such as spiny water flea and rock bass. Invasive species were found in a number of new lakes.

Aerial surveys were carried out to estimate summer fishing pressure. Staff counted boats on 115 lakes in the northwest, 71 in the northeast and 60 lakes in the south. For more information, visit www.ontario.ca/fishing.

2010 Monitoring Highlights

Across Ontario, ministry staff monitored 219 lakes —31 in the south, 58 in the northeast and 130 in the northwest. Staff sampled fish to measure length and weight, and estimate abundance. Fish were also tested for contaminants.

Water temperatures, oxygen levels, and clarity were recorded, and samples from about 197 lakes were sent to the Ministry of the Environment for water-quality analysis. Some lakes were also examined for invasive species such as spiny water flea and rock bass.

Aerial surveys were carried out to estimate summer fishing pressure. Staff counted boats on 96 lakes in the northeast and 32 lakes in the south.

Within Pembroke District, sampling occurred throughout Fisheries Management Zones 15 & 12 (see map of Ontario's new fisheries management zones (FMZs) at www.ontario.ca/fishing). These lakes included: Bark Lake, Calabogie Lake, Lac la Cave, Lake Dore, Leatherroot Lake, Lower Allumette Lake, Mink Lake, Norway Lake and Tee Lake.

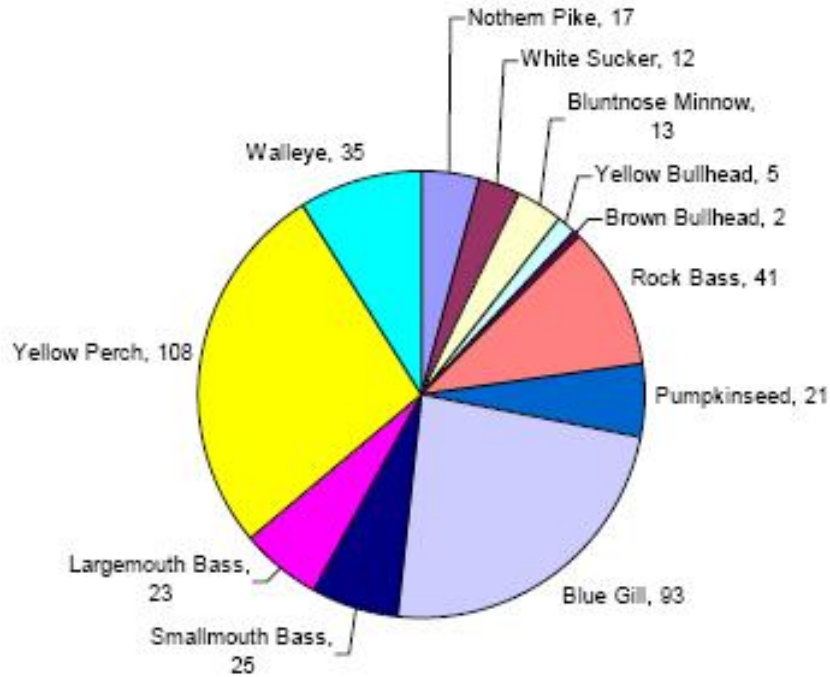
Summary of Results for Broadscale Monitoring on Norway Lake – 2010

The following information is a summary of the draft results of the Broadscale Monitoring (BsM) program, which took place on Norway Lake between July 26th, and 29th, 2010. The lake was divided into separate depth "stratums" (1-3 meters, 3-6 meters, 6-12 meters, 12-20 meters, 20-35 meters and 35-50 meters) before netting locations were randomly chosen.

As previously described, crews of technicians and biologists collected and recorded a variety of information from the fish caught during the netting period, including fish species, sex, age, length, weight and general health. This information is used to determine sport fish abundance, life history characteristics of key species, and diversity of the fish community. Some fish were also sampled for contaminant levels. Detailed analysis will be completed on a Fisheries Management Zone (FMZ) basis following completion of the five year sampling cycle.

For a preliminary summary, the following chart represents the aggregate numbers of each species caught in Norway Lake during the 2010 sampling. The number of each species is indicated beside the name (example: smallmouth bass, 47 indicates 47 smallmouth bass were caught in the 2010 sampling).

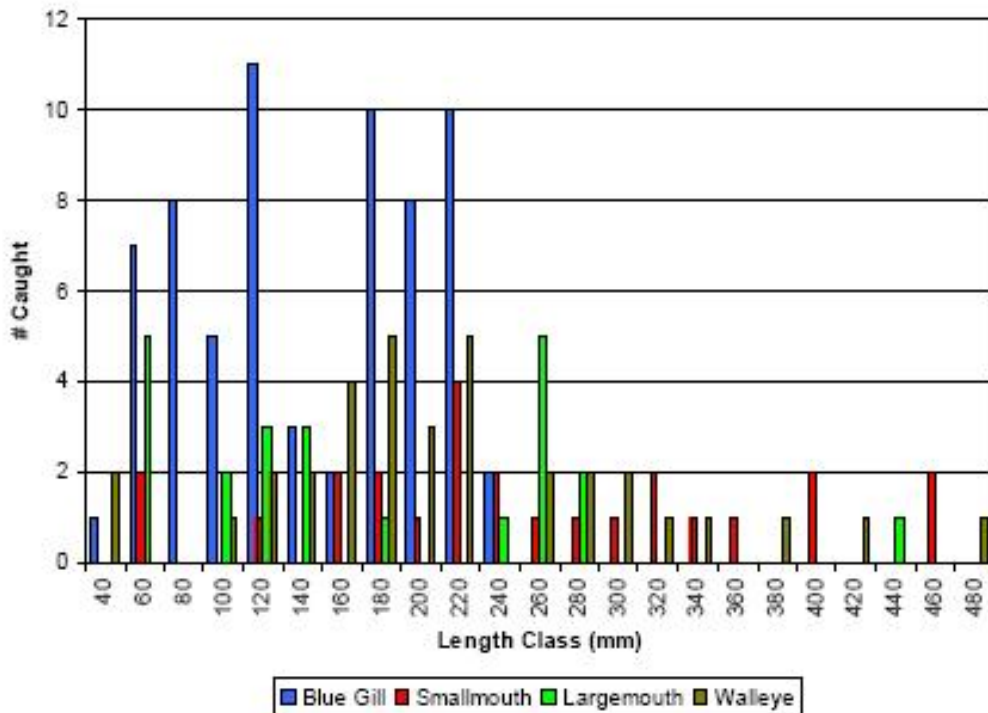
2010 Draft BsM Results, Norway Lake



Overall, there were 395 fish of 12 different species caught from 24 sample locations. Yellow perch were the most frequently caught species (27.3%), followed by blue gill (23.5%), rock bass (10.3%), walleye (8.6%), smallmouth bass (6.3%), largemouth bass (5.8%), pumpkinseed (5.3%) and northern pike (4.3%). The remainder of the catch, in order of abundance was comprised of bluntnose minnows (3.2%), white sucker (3%), yellow bullhead (1.2%) and brown bullhead (0.5%).

Of the sport fish that were sampled, the catch was broken down into size or length classes to look at the size distribution. The following graph shows the fork length distribution in 20mm length classes for main sport fish species in Norway Lake (blue gill, smallmouth, largemouth and walleye).

Fork Length Distribution of Sport Fish in Norway Lake, 2010



Blue gill ranged in size from the 40mm class to the 240mm length class, with the highest

catch in the 120mm class. Smallmouth bass ranged from the 60mm to 460mm length class, with the greatest numbers occurring in the 220mm class. Largemouth bass occupied the 60mm to 440mm length classes, with the 260mm class being the most abundant. Walleye were distributed between the 100mm to 480mm length classes with the greatest abundance being split equally between the 180mm and 220mm length classes.

In conclusion, the Broadscale Monitoring program will be able to describe the state of the fisheries resource on a FMZ wide basis (not an individual lake basis) after the completion of the first 5-year cycle.